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EXAMINER

WADDY, JONATHAN J

ART UNIT

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4136

NOTIFICATION DATE

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12/09/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/588,723	Applicant(s) ISHIKAWA, KAZUKI	
	Examiner Jonathan Waddy	Art Unit 4136	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>7/29/08, 9/19/07, 8/8/06</u> . | 6) <input type="checkbox"/> Other: ____. |

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

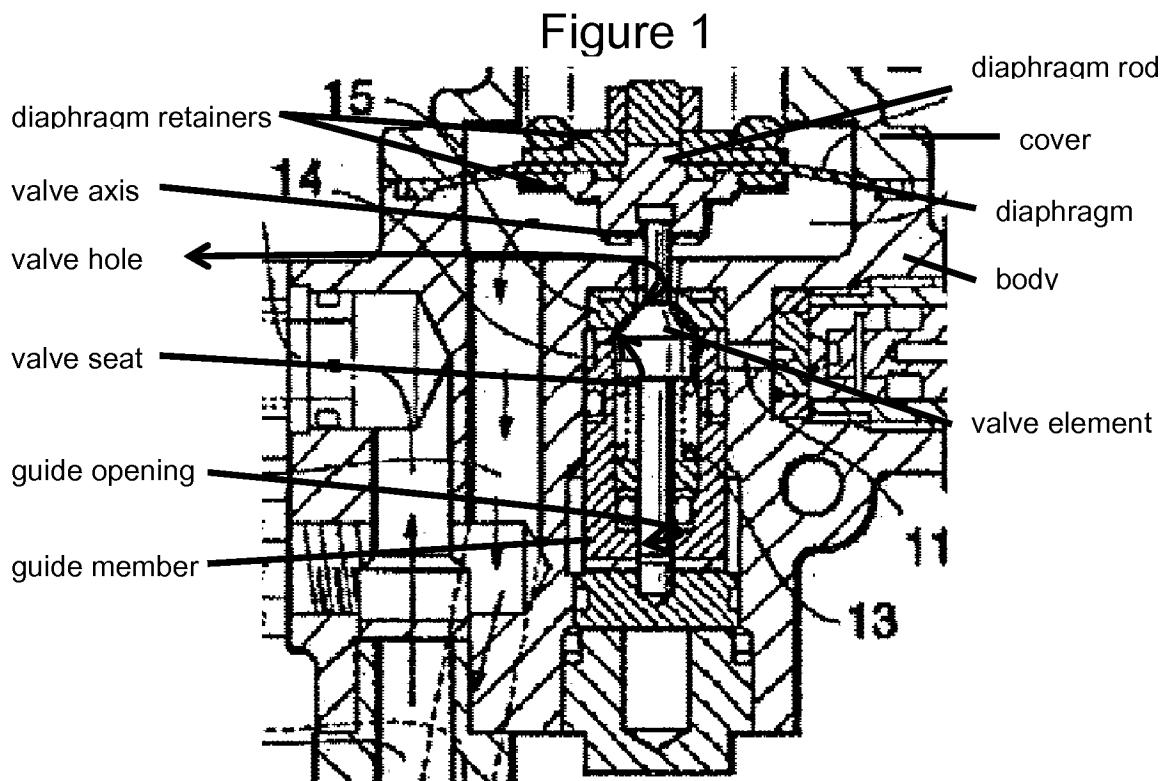
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 7, 8, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese application 11-006756 (Katsuji).

3. Regarding claim 1, Katsuji discloses each and every structural element of the pressure reducing valve set forth in the claim as shown in Figure 1 below taken from Figure 2 of Katsuji. There is a valve housing consisting of a body and a cover, a diaphragm whose rim is sandwiched between the body and cover, a diaphragm rod that is held at the center of the diaphragm via diaphragm retainers. There is also a valve axis with one end coupled to the diaphragm rod in a detachable manner, a valve element provided on an intermediate portion of the valve axis and capable of being seated on a valve seat on valve seat member (15) that is fixed to the body, and a valve hole that the valve axis can be inserted through the center of. There is a guide member that provides for a guide opening in the form of a cylindrical concave portion in the top of the guide member that allows the valve axis to be fitted in along with a spring (13) between the valve element that protrudes from the valve axis and the guide member. With the parts mentioned, the valve action unit can be made, consisting of the valve seat member with a valve hole and a valve seat, a guide member pressed

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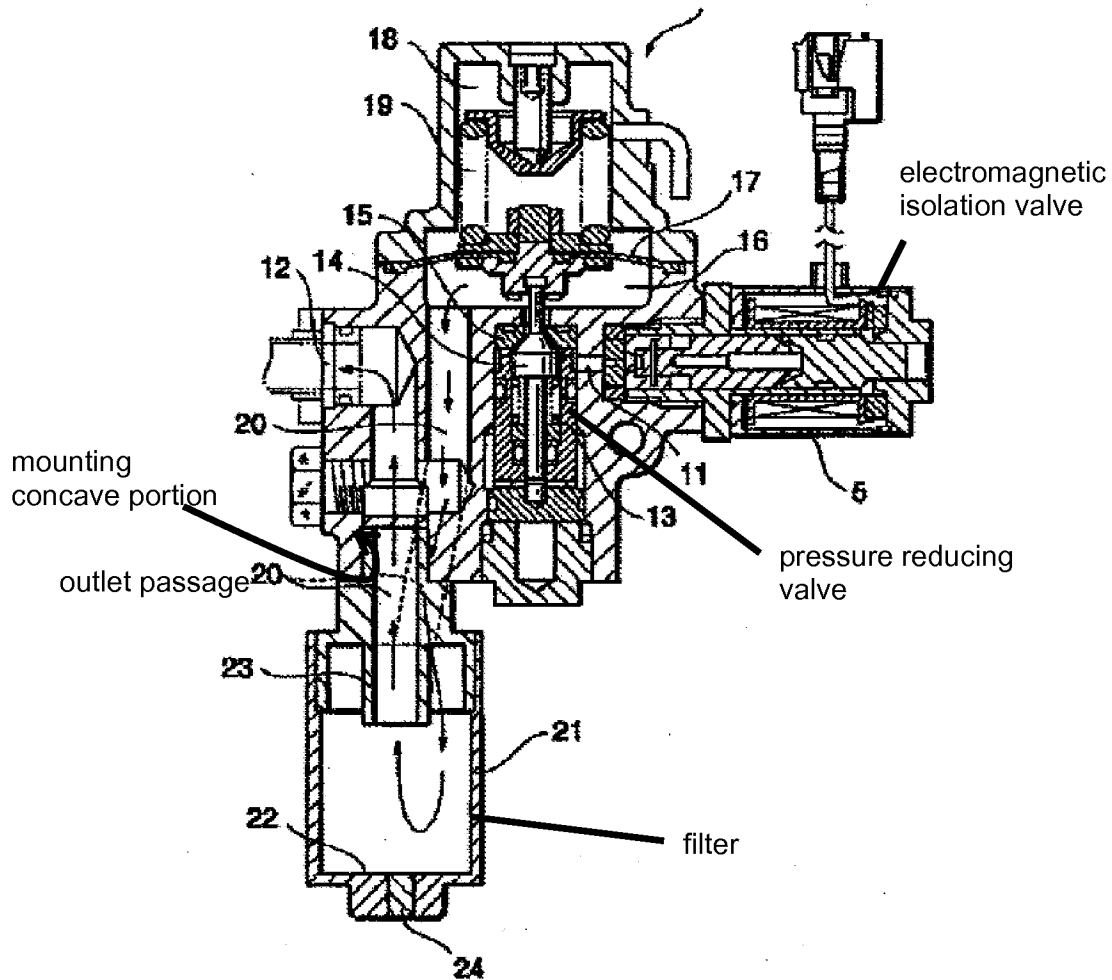
onto the valve seat member with a guide opening, a valve axis, and a valve element. This valve action unit is mounted onto the body in such a way that the valve axis projects from the valve hole and the other end of the valve axis fitted in the guide opening in a slidable manner. The limitation that the valve action unit is preassembled has no patentable weight, being that it describes a method in an apparatus claim, which only concerns the final assembled structure.



4. Regarding claim 7, Katsuji discloses a pressure reducing valve as discussed in paragraph 3 and further discloses a gas regulator set forth in the claim as shown in Figure 2 below, copied from Figure 2 of Katsuji. The regulator in Katsuji includes an electromagnetic isolation valve (5) and a pressure reducing valve mounted on the body between the inlet passage to the regulator and outlet passage (20 dotted line), and an "impurity separation mechanism (21) capable of

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filtering out such impurities as oil" (mentioned in the abstract), which therefore acts as an oil filter.

Figure 2

5. Regarding claim 8, Katsuji discloses a pressure reducing valve as discussed in paragraph 3 and a regulator for gas as discussed in paragraph 4, and further discloses a mounting concave portion in the body shown in Figure 2 as a hole in which the filter is inserted into. The filter is also sandwiched between the body and a filter cover (21) as seen in Figure 4a, and the filter cover is

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detachably mounted on the body by covering a projection of the filter from the body as seen in Figure 2.

6. Regarding claim 10, Katsuji discloses a pressure reducing valve as discussed in paragraph 3, a regulator for a gas as discussed in paragraph 4, a filter as discussed in paragraph 5, and further a filter cover (21) with a drain hole and a drain bolt (24), shown in Figure 2. The drain bolt is inserted into the drain hole at the bottom of the filter cover in a liquid-tightly closed fashion.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katsuji as applied to claim 1 above, and further in view of US Pat. No. 6,109,302 (Bircann). Katsuji discloses a pressure reducing valve as discussed in paragraph 3 with a concave portion in the diaphragm rod that allows for a swingable fit of the voluminous portion provided on the end of the valve axis, shown in Figure 2. The diaphragm rod is designed to provide a slot for the valve axis to slide into as shown in Figure 2, with a portion of the diaphragm rod extending below the voluminous portion of the valve axis so that there is contact with the narrow portion of the valve axis. However, Katsuji lacks a clip. Bircann discloses a three-way gas management valve that provides for a "C-clip or other ring-like

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retainer (53)"(col. 2 line 50) that is detachably inserted into a slit in the valve axis (44) as shown in Figure 2. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the connection in Katsuji with the clip connection in Bircann to perform the same function as that which is mentioned in the application while also eliminating the need to mill a lateral slot in the diaphragm rod in Katsuji.

9. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katsuji as applied to claim 1 above, and further in view of US Pat. No. 2,707,966 (Taplin).

10. Regarding claim 3, Katsuji discloses a pressure reducing valve as discussed in paragraph 3 with a concave portion in the body facing the diaphragm side, but lacks a bulkhead member that fits into the concave portion that acts as a partition for a decompression chamber and a pressure action chamber. Taplin shows a bulkhead member (14) in Figure 2. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include a bulkhead member as taught by Taplin to create a rigid plate to create a decompression chamber separated from the pressure action chamber via the bulkhead member. Furthermore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use any material well known to be used to make a valve, including a sheet of iron, for its strength and impermeability. The limitation that bulkhead member is made by press-stamping a sheet iron has no patentable weight, being that it describes a

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method in an apparatus claim, which only concerns the final assembled structure, which is the bulkhead member that the claim refers to.

11. Regarding claim 4, Katsuji discloses the pressure reducing valve as discussed in paragraph 3 with regulating pieces on the bottom face of the diaphragm rod in the direction of the pressure reducing valve below the voluminous portion of the valve axis. These regulating pieces prevent contact of the diaphragm rod with the body where the pressure reducing valve is inserted. However, Katsuji lacks a bulkhead member. Taplin discloses a bulkhead member as discussed in paragraph 10. Furthermore, Taplin provides a bulkhead member (14) that is bolted to the body via screws (15). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include a bulkhead member that was bolted to the body via bolts as shown in Taplin to keep the bulkhead in place. Furthermore, it would have been obvious to utilize the inherent extension of the bolt heads above the plane of the bulkhead to regulate the deflection of the diaphragm to the pressure action chamber to negate the need of the pieces at the bottom of the diaphragm rod that act as regulators.

12. Regarding claim 5, Katsuji discloses a pressure reducing valve as discussed in paragraph 3, and further an outlet passage (20 dotted line) on the body. Katsuji lacks a decompression chamber, an aspirator passage, and a continuous hole. Taplin shows in Figure 2, an outlet passage (3) on the body leading to the decompression chamber (5) and an aspirator passage on the body with one end leading to the continuous hole (12) in the bulkhead member (14)

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and the other end communicating with the outlet passage (3). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include a bulkhead member as previously mentioned, and to include a continuous hole in the bulkhead member as taught by Taplin to go along with the continuous hole in the concave portion of the body to ensure operation of the aspirator.

13. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katsuji and Taplin as applied to claim 5 above, alone or taken with of US Pat. No. 2,946,344 (Mott). Katsuji discloses a pressure reducing valve as discussed in paragraph 3 and Taplin discloses a pressure regulator valve as discussed in paragraph 12. Taplin provides an aspirator passage leading to an outlet passage, which is seen to meet the claim limitations. However, should Taplin be seen to lack an aspirator tube that connects the aspirator passage to the downstream side of a gas flow direction inside the outlet passage, Mott provides such an aspirator tube (50), as shown in the Figure in Mott. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to add an aspirator tube as shown in Mott to the end of the aspirator passage to connect the passage to the outlet passage to direct the flow through the aspirator passage toward the downstream direction. The aspirator tube would provide for a flow that would more likely be laminar, which would provide for a smoother operation of the regulator without destructive happenings such as vibrations.

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14. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katsuji as applied to claim 8 above, and further in view of Japanese application 06-086127 (Akio). Katsuji discloses a regulator for gas as discussed in paragraph 5 with a filter to be inserted into its body at a mounting concave portion. However, Katsuji lacks details of the filter recited in claim 9. Akio discloses a drain collecting filter with a mesh portion (24), a cylindrical filter case (23) made of "resin nonwoven fabric" (mentioned in the abstract), a catching hole (20) that the gas passage (11) leads into in the body, on which the filter is attached to in Figure 1, an elastic member (19) with one end that fits into the catching hole (20), a collar portion on the elastic member (19) that juts outward from the cylindrical body and is sandwiched between one end of the filter case (23) and the closed end of a mounting concave portion, an oil storage chamber (L), and an upper end of the storage chamber (L) leading to the outlet passage (12). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include a filter with components as shown in Akio with the elastic member of Akio connecting the filter case and other filter components to the mounting concave portion of Katsuji to permit easy replacement.

15. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katsuji as applied to claim 8 above, and further in view of US Pat. No. 4,697,617 (Bourke et al.). Katsuji discloses a gas regulator as discussed in paragraph 5, but does not provide a relief valve mounted on the filter cover. Bourke discloses a pressure relief valve and filter in connection to a cryopump. As shown in

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Figure 2 of Bourke, the pressure relief valve assembly (60) is mounted onto the filter assembly (62) in such a way that it makes up the bottom of the filter assembly, with the filter cover (78) acting as the walls. Therefore, it would have been obvious to one having ordinary skill in the art to provide a pressure relief valve mounted to the filter as taught by Bourke to allow dangerously high pressures in the regulator to escape (Bourke, col. 1 lines 45-47).

16. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katsuji in view of Akio as applied to claim 9 above, taken with US Pat. No. 3,695,438 (Malpassi). Katsuji discloses a pressure reducing valve as discussed in paragraph 3, a regulator for gas as discussed in paragraph 4, and a filter as discussed in paragraph 5, while Akio discloses a filter as discussed in paragraph 14. Katsuji provides a filter cover mounted on an undersurface of the body, in addition to a part of the pressure reducing valve being mounted on the body from a topside of the body, and a back pressure hole on the body, but lacks a back pressure hole leading to the storage chamber of the oil filter. Malpassi discloses a gasoline pressure regulator with a back pressure hole (22) leading into a filter as shown in Figure 1. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the back pressure hole lead into the filter, specifically the storage chamber as taught by Malpassi to avoid having impure gas reentering the regulator.

17. Claims 1 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pat. No. 6,176,256 (Nakajima), and further in view of US Pat. No. 5,443,083 (Gotthelf).

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18. Regarding claim 1, Nakajima discloses a pressure reducing valve, shown in Figure 8, with a valve housing (90) consisting of a body (34) and a cover (91), a diaphragm (93) whose rim is sandwiched between the body (34) and cover (91), a diaphragm rod (124) that is held at the center of the diaphragm (93) via diaphragm retainers (119 and 120), a valve axis (107) with one end coupled to the diaphragm rod (124) in a detachable manner, a valve element (106) provided on an intermediate portion of the valve axis (107) and capable of being seated on a valve seat (105) that is fixed to the body (34), and a valve hole (104) that the valve axis (107) can be inserted through the center of. Nakajima lacks a guide member with a guide opening, but Gotthelf discloses another pressure reducing valve that includes a guide member without a guide member. In Figure 3 of Gotthelf, guide member (28) provides for a guide opening in the form of a cylindrical concave portion in the top that allows the valve axis to be fitted in along with a spring between the valve element that protrudes from the valve axis and the guide member. In Figure 6 of Gotthelf, the guide member is shown with the top-most portion resting solely on the seat (176), rather than having a portion of the guide member touch a portion of the body on which the seat member rests on as in Figure 3. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a separate guide member as taught by Gotthelf to allow replacement of the guide as a result of wear between the axis and guide. With the parts mentioned in both references, the valve action unit can be made, consisting of the valve seat member (98 Nakajima) with a valve hole (104 Nakajima) and a valve seat (105 Nakajima), a

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guide member (28 Gotthelf) pressed onto the valve seat member (100 Nakajima) with a guide opening, a valve axis (107 Nakajima), and a valve element (106 Nakajima). This valve action unit is mounted onto the body in such a way that the valve axis (107 Nakajima) projects from the valve hole (104 Nakajima) and the other end of the valve axis (107 Nakajima) fitted in the guide opening in a slidable manner. As mentioned in paragraph 3, the limitation that the valve action unit is preassembled has no patentable weight, being that it describes a method in an apparatus claim, which only concerns the final assembled structure.

19. Regarding claim 7, Nakajima and Gotthelf together disclose a pressure reducing valve as discussed in paragraph 18 and Nakajima further teaches a regulator for gas with an electromagnetic isolation valve (36) and pressure reducing valve (37) provided on the body as shown in Figure 4. Nakajima also shows in Figures 4 and 5 a filter (35) mounted on the body. Specifically, the filter (35) is located between the primary and secondary reducing valves (col. 25 line 20 – col. 26 line 1), so in terms of the primary reducing valve, the filter is located between the pressure reducing valve and the outlet passage. The filter is said to be used to filter out impurities which is contained in the gas (col. 25 line 18), and is shown to be in line after an oil filter in Figure 1, so such impurities would contain oil when it is considered that nothing performs at 100% efficiency, in which case, the filter acts as a second oil filter.

20. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakajima and Gotthelf as applied to claim 1 above, and further in view of

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Bircann. Nakajima and Gotthelf disclose a pressure reducing valve as discussed in paragraph 18, and Nakajima also discloses a concave portion in the diaphragm rod (124) provided coaxially on the end of the diaphragm rod that connects to the valve axis (107) in the form of a threaded bore, which the valve axis (107) is threaded into, shown in Figure 8. Due to the threaded portions, Nakajima lacks a swingable connection between the diaphragm rod and the valve axis. Gotthelf discloses a swingable connection between a diaphragm rod like part (194) and the valve axis (170) in Figures 6-9. The concave portion in the diaphragm rod like part allows for a voluminous portion (198) at one end of the valve axis (170) to fit into it. However, Nakajima and Gotthelf lack a clip member that engages the voluminous portion that is detachably inserted in the diaphragm rod. Bircann discloses a three-way gas management valve that provides for a "C-clip or other ring-like retainer (53)"(col. 2 line 50) that is detachably inserted into a slit in the valve axis (44) as shown in Figure 2. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the diaphragm rod and valve axis connection in Gotthelf with the clip connection in Bircann to perform the same function as that which is mentioned in the application while also eliminating the need to mill a slot in the diaphragm rod in Gotthelf.

21. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakajima and Gotthelf as applied to claim 1 above, and further in view of US Pat. No. 2,707,966 (Taplin).

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22. Regarding claim 3, Nakajima and Gotthelf disclose the pressure reducing valve as discussed in paragraph 18, and Nakajima further shows a concave portion in the body where the diaphragm rod and valve axis meet, but lacks a bulkhead member that fits into the concave portion. Taplin shows a bulkhead member (14) in Figure 2. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include a bulkhead member like that in Taplin to isolate the valve outlet from the pressure action chamber, in which case an aspirator could be used to make pressure regulation less sensitive to flow rate variations. Furthermore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use any material well known to be used to make a valve, including a sheet of iron, for its strength and impermeability. As mentioned in paragraph 10, the limitation that bulkhead member is made by press-stamping a sheet iron has no patentable weight, being that it describes a method in an apparatus claim, which only concerns the final assembled structure, which is the bulkhead member that the claim refers to.

23. Regarding claim 4, Nakajima and Gotthelf disclose the pressure reducing valve with a bulkhead member added from Taplin as discussed in paragraph 22, and Nakajima further teaches a plurality of ridges (138) that are provided to contact the first diaphragm retainer (119) to regulate the deflection of the diaphragm toward the pressure reducing chamber (col. 13 lines 17-20) as shown in Figure 8. Nakajima and Gotthelf lack a bulkhead member that is bolted to the body. Taplin discloses a bulkhead member (14) that is bolted to the body via

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screws (15) shown in Figure 2. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to fix the bulkhead member to the body using bolts as taught by Taplin, as a simple way of keeping the bulkhead member in place. Furthermore, it would have been obvious to utilize the inherent extension of the bolt heads above the plane of the bulkhead to regulate the deflection of the diaphragm to the pressure action chamber to negate the need for the ridges provided in Nakajima simplifying production by reducing the protrusions to include in manufacturing the body.

24. Regarding claim 5 Nakajima and Gotthelf disclose a pressure reducing valve as discussed in paragraph 18 and Taplin discloses a bulkhead member as discussed in paragraph 22. Gotthelf discloses further an outlet passage (20) on the body leading to the decompression chamber (50) in Figure 3, and an aspirator passage on the body with one end leading to the continuous hole (104) and the other end communicating with the outlet passage (20) in Figure 5. Gotthelf, however, lacks a bulkhead member. Taplin shows in Figure 2 a bulkhead member (14) as previously mentioned provided on the inner surface of the concave portion of the body with a continuous hole (12). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include a bulkhead member shown in Taplin as previously mentioned, and to include a continuous hole in the bulkhead member to go along with the continuous hole in the concave portion of the body to ensure operation of the aspirator.

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25. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakajima, Gotthelf, and Taplin as applied to claim 5 above, alone or taken with of US Pat. No. 2,946,344 (Mott). Nakajima and Gotthelf disclose a pressure reducing valve as discussed in paragraph 18 and Taplin discloses a pressure regulator valve as discussed in paragraph 24. Taplin provides an aspirator passage leading to an outlet passage, which is seen to meet the claim limitations. However, should Taplin be seen to lack an aspirator tube that connects the aspirator passage to the downstream side of a gas flow direction inside the outlet passage, Mott provides such an aspirator tube (50), as shown in the Figure in Mott. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to add an aspirator tube as shown in Mott to the end of the aspirator passage to connect the passage to the outlet passage to direct the flow through the aspirator passage toward the downstream direction. The aspirator tube would provide for a flow that would more likely be laminar, which would provide for a smoother operation of the regulator without destructive happenings such as vibrations

26. Claims 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakajima and Gotthelf as applied to claim 7 above, and further in view of Japanese application 11-006756 (Katsuji).

27. Regarding claim 8, Nakajima and Gotthelf disclose a pressure reducing valve as discussed in paragraph 19, however, Nakajima lacks a filter cover. Katsuji discloses a regulator for gas with an oil filter with a cover (21), shown in Figure 2. Therefore, it would have been obvious to one having ordinary skill in

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the art at the time the invention was made to include a filter cover as shown in Katsuji to provide for a modular design, which would provide for making easier repairs to the system. Modular designs for filters are discussed in various pressure regulators, such as in US Pat. No. 6,098,652 (Brandt), which teaches that a modular fuel filter and pressure regulator apparatus permits the filter element to be replaced separately from the regulator or vice versa (col. 1 lines 24-26).

28. Regarding claim 10, Nakajima and Gotthelf disclose a pressure reducing valve as discussed in paragraph 19 and Katsuji discloses a regulator for gas with a filter as discussed in paragraph 27. Nakajima and Gotthelf lack a filter with a drain hole and a drain bolt, but Katsuji shows in Figures 2-4a a filter with a drain bolt (24) inserted in a hole that would be a drain hole in the center of the bottom of the filter cover (21). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to include a drain hole and a drain bolt to the filter as taught by Katsuji for simpler access to the filter for cleaning the oil storage chamber as opposed to having to dismount the whole filter from the body.

29. Claims 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakajima, Gotthelf, and Katsuji as applied to claim 8 above, and further in view of Japanese application 06-086127 (Akio). Nakajima and Gotthelf disclose a pressure reducing valve as discussed in paragraph 19, and Katsuji discloses a regulator for gas as discussed in paragraph 27 with a filter to be inserted into its body at a mounting concave portion. Katsuji lacks however, details of the filter

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recited in claim 9. Akio discloses a drain collecting filter with a mesh portion (24), a cylindrical filter case (23) made of “resin nonwoven fabric” (mentioned in the abstract), a catching hole (20) that the gas passage (11) leads into in the body, on which the filter is attached to in Figure 1, an elastic member (19) with one end that fits into the catching hole (20), a collar portion on the elastic member (19) that juts outward from the cylindrical body and is sandwiched between one end of the filter case (23) and the closed end of a mounting concave portion, an oil storage chamber (L), and an upper end of the storage chamber (L) leading to the outlet passage (12). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include a filter with components as shown in Akio with the elastic member of Akio connecting the filter case and other filter components to the mounting concave portion of Katsuji to permit easy replacement.

30. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakajima, Gotthelf, and Katsuji as applied to claim 8 above, and further in view of US Pat. No. 4,697,617 (Bourke et al.). Nakajima and Gotthelf disclose a pressure reducing valve as discussed in paragraph 19, Katsuji discloses a gas regulator as discussed in paragraph 27, but does not provide a relief valve mounted on the filter cover. Bourke discloses a pressure relief valve and filter in connection to a cryopump. As shown in Figure 2 of Bourke, the pressure relief valve assembly (60) is mounted onto the filter assembly (62) in such a way that it makes up the bottom of the filter assembly, with the filter cover (78) acting as the walls. Therefore, it would have been obvious to one having ordinary skill in the

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art to provide a pressure relief valve mounted to the filter as taught by Bourke to allow dangerously high pressures in the regulator escape (Bourke, col. 1 lines 45-47).

31. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakajima, Gotthelf, Katsuji, and Akio as applied to claim 9 above, and further in view of US Pat. No. 3,695,438 (Malpassi). Nakajima and Gotthelf disclose a pressure reducing valve as discussed in paragraph 19, Katsuji discloses a pressure reducing valve with a filter as discussed in paragraph 27, and Akio discloses a filter as discussed in paragraph 29. Katsuji provides a filter cover mounted on an undersurface of the body, in addition to a part of the pressure reducing valve being mounted on the body from a topside of the body, and a back pressure hole on the body, but lacks a back pressure hole leading to the storage chamber of the filter. Malpassi discloses a gasoline pressure regulator with a back pressure hole (22) leading into a filter as shown in Figure 1.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the back pressure hole lead into the filter, specifically the storage chamber as taught by Malpassi to avoid having impure gas reentering the regulator.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Waddy whose telephone number is (571)270-3146. The examiner can normally be reached on Monday-Thursday, EST 7:30am-5pm, alternate Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Hepperle can be reached on (571)272-4913. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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